

CAVEATS: Some of this material is very inside -- many readers will have to excuse cryptic references.

The label "PROBLEM" does not always mean exercise; if no solution is given, it means we couldn't solve it. If you solve a problem in here, let us know.

Unless otherwise stated, all computer programs are in PDP-11 assembly language.

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Information should be free

Early hackers believed that information should be free and shared all their creations freely with others, but their disregard for conventional academic structures meant that their work was documented only in internal reports or on the ARPANET. The HAKMEM memo from 1972 collects 192 assorted items of hacker knowledge.

HAKMEM

Compiled with the hope that a record of the random things people do around here can save some duplication of effort -- except for fun.

Here is some little known data which may be of interest to computer hackers. The items and examples are so sketchy that to decipher them may require more sincerity and curiosity than a non-hacker can muster. Doubtless, little of this is new, but nowadays it's hard to tell. So we must be content to give you an insight, or save you some cycles, and to welcome further contributions of items, new or used.

The classification of items into sections is even more illogical than necessary. This is because later elaborations tend to shift perspective on many items, and this elaboration will (hopefully) continue after publication, since this text is retained in "machinable" form. We forgive in advance anyone deterred by this wretched typography.

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PUSHJ P₊₊₁ is a nice way to have something happen twice.

Inventing interactive programming

The TX-0 computer was built in 1956. The control panel included Toggle Switch Storage for setting sixteen 18-bit registers, a 12 1/2" CRT screen and a teletype terminal.

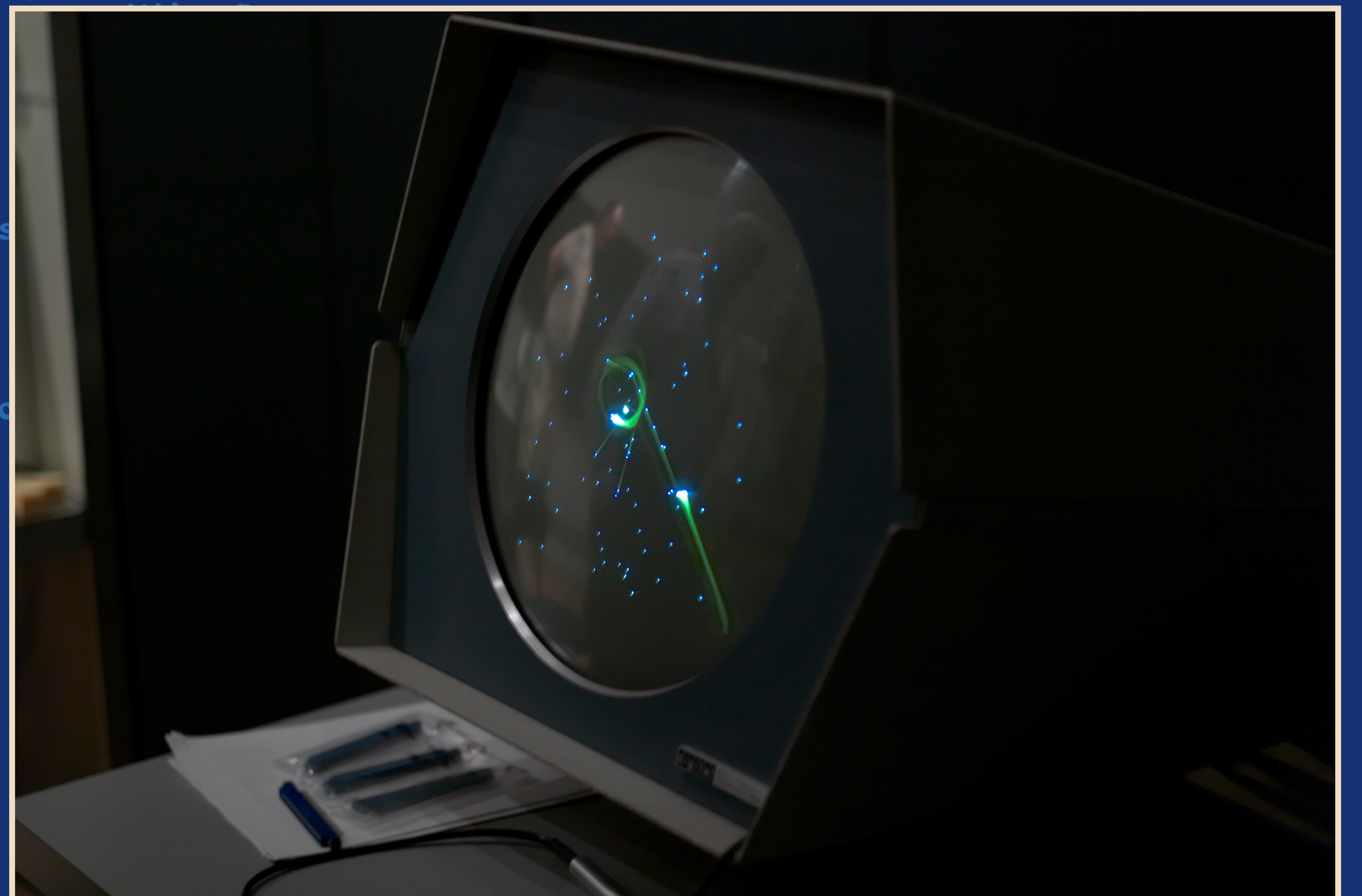
TX-0 was available for interactive use, attracting MIT hackers who built the first on-line debugging tool, letting them view and change the state of a running program.

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culture

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program execution. Hackers like people referred to as **crackers** can do and pride themselves on tricks to push those limits.



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NUMBER THEORY, PRIMES, PROBABILITY
***** Just having fun *****

Spacewar! was an interactive game built by a group of MIT hackers in 1962 to showcase the capabilities of the TX-0 computer successor PDP-1.

Squeezing a realistic star map and gravity into 4k 18-bit words required ingenuity—spaceship rendering even used a kind of just-in-time compilation.

